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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

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June 1970

U.S. Training and
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Technical Report
S-385R

Development of USTES

APTITUDE TEST
BATTERY FOR

**MANAGER,
STORE**

(ret. tr.) I
185.168

U.S. DEPARTMENT OF LABOR
Manpower Administration



Technical Report on Development of USTES Aptitude Test Battery
For

Manager, Store (ret. tr.) I 185.168

S-385R

(Developed in Cooperation with the
Ohio State Employment Service)

U.S. Department of Labor
Manpower Administration

June 1970

FOREWORD

The United States Training and Employment Service General Aptitude Test Battery (GATB) was first published in 1947. Since that time the GATB has been included in a continuing program of research to validate the tests against success in many different occupations. Because of its extensive research base the GATB has come to be recognized as the best validated multiple aptitude test battery in existence for use in vocational guidance.

The GATB consists of 12 tests which measure 9 aptitudes: General Learning Ability, Verbal Aptitude, Numerical Aptitude, Spatial Aptitude, Form Perception, Clerical Perception, Motor Coordination, Finger Dexterity, and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, with a standard deviation of 20.

Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, in combination predict job performance. For any given occupation, cutting scores are set only for those aptitudes which contribute to the prediction of performance of the job duties of the experimental sample. It is important to recognize that another job might have the same job title but the job content might not be similar. The GATB norms described in this report are appropriate for use only for jobs with content similar to that shown in the job description included in this report.

Development of USTES Aptitude Test Battery

For

Manager, Store (ret. tr.) I 185.168-054

S-385R

This report describes research undertaken for the purpose of developing General Aptitude Test Battery (GATB) norms for the occupation of Manager, Store (ret. tr.) I 185.168-054. The following norms were established:

GATB Aptitudes	Minimum Acceptable GATB Scores
V-Verbal Aptitude	95
S-Spatial Aptitude	90
P-Form Perception	85
Q-Clerical Perception	100

Research Summary

Sample:

51 students (33 males and 18 females) enrolled in a course for retail trade management in Ohio.

This study was conducted prior to the requirement of providing minority group information. Therefore, minority group status is unknown.

Criterion:

Grade-point average

Design:

Longitudinal (tests were administered at the beginning of the course of study, and criterion data were collected at the completion of the course of study.)

Minimum aptitude requirements were determined on the basis of job analyses and statistical analyses of aptitude mean scores, standard deviations, and selective efficiencies.

Predictive Validity:

Phi Coefficient = .25 ($P/2 < .05$)

Effectiveness of Norms:

Only 55% of the non-test-selected students used for this study were good students; if the students had been test-selected with the S-385R norms, 68% would have been good students. 45% of the non-test-selected students used in this study were poor students; if the students had been test selected with the S-385R-norms, only 32% would have been poor students. The effectiveness of the norms is shown graphically in Table 1:

Table 1

Effectiveness of Norms

	Without Tests	With Tests
Good Workers	55%	68%
Poor Workers	45%	32%

SAMPLE DESCRIPTION

Size:

N = 51

Occupational Status:

Students.

Training Setting:

Students were enrolled at the University of Toledo, Toledo, Ohio.

University Enrollment Requirements:

High school graduates are preferred. Other applicants are admitted on the basis of their previous scholastic record and the extent of their pertinent work experience.

Principal Activities:

The course of study for each student is shown in the Appendix.

TABLE 2

Means, Standard Deviations (SD), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age and Education.

	Mean	SD	Range	r
Age (years)	19.5	.85	18-22	.251
Education (years)	13.1	.44	12-15	.277*

*Significant at the .05 level

EXPERIMENTAL TEST BATTERY

All 12 tests of the GATB, B-1002 were administered in May 1962.

CRITERION

The criterion data consisted of cumulative grade-point averages earned by the students during the two years of the course of study.

Criterion Score Distribution:

Possible Range:	0-4
Actual Range:	1.3-3.7
Mean:	2.07
Standard Deviation:	.50

Criterion Dichotomy:

The criterion distribution was dichotomized into low and high groups by placing 45% of the sample in the low group to correspond with the percentage of students considered by the school to be doing marginal or unsatisfactory work. Students in the high criterion group were designated as "good students" and those in the low group as "poor students." The criterion critical score is 2.0 (required for graduation from the course).

APTITUDES CONSIDERED FOR INCLUSION IN THE NORMS

Aptitudes were selected for tryout in the norms on the basis of a qualitative analysis of the course description and statistical analyses of test and criterion data. Aptitudes V, N, S, and Q were selected for trial as test norms even though they do not have a significant correlation with the criterion. The qualitative analysis indicated that they are important for the course of study. In addition the sample had a relatively high mean score on S, P, and Q. Tables 3, 4, and 5 show the results of the qualitative and statistical analyses.

TABLE 3

Qualitative Analysis
(Based on the course description, the aptitudes indicated
appear to be important for the course of study)

Aptitude	Rationale
V - Verbal Aptitude	Necessary in the practical application of the techniques of salesmanship and advertising; necessary in expressing oneself orally and in writing.
N - Numerical Aptitude	Necessary in keeping financial records, budgeting, merchandise control, inventory, profits, retail buying, etc.
S - Spatial Aptitude	Necessary for the practical applications of selection and display of merchandise.
P - Form Perception	Necessary in the planning and preparation of advertising, copy and layout through applying the elements of line, form, texture, and space.
Q - Clerical Perception	Necessary for retail record keeping and for correct maintenance of books, notes and other material pertinent to school and work.

TABLE 4

Means, Standard Deviations (SD), Ranges, and Pearson Product-Moment
Correlations with the Criterion (r) for the Aptitudes of the GATB; N=51.

Aptitude	Mean	SD	Range	r
G - General Learning Ability	105.9	13.1	83-135	.131
V - Verbal Aptitude	101.4	10.0	80-125	.167
N - Numerical Aptitude	105.5	11.4	81-130	.221
S - Spatial Aptitude	108.5	20.0	68-166	-.080
P - Form Perception	108.2	15.0	74-137	.347*
Q - Clerical Perception	110.8	12.0	89-141	.194
K - Motor Coordination	106.8	11.8	82-140	.073
F - Finger Dexterity	108.3	20.4	75-156	.133
M - Manual Dexterity	115.0	21.5	75-167	-.112

*Significant at the .05 level

TABLE 5
Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
<u>Important</u>	X	X	X	X	X	X			
<u>Irrelevant</u>									
<u>Relatively High Mean</u>				X	X	X		X	X
<u>Relatively Low Standard Dev.</u>		X	X			X	X		
<u>Significant Correlation with Criterion</u>					X				
<u>Aptitudes to be considered for Trial Norms</u>		V	N	S	P	Q			

DERIVATION AND VALIDITY OF NORMS

Final norms were derived on the basis of a comparison of the degree to which trial norms consisting of various combinations of aptitudes V, N, S, P, and Q at trial cutting scores were able to differentiate between the 55% of the sample considered good students and the 45% of the sample considered poor students. Final cutting scores at five point intervals approximately one standard deviation below the mean were tried because this will eliminate about 1/3 of the sample with three-aptitude norms. For four-aptitude trial norms, cutting scores slightly lower than one standard deviation below the mean will eliminate about 1/3 of the sample; for two-aptitude trial norms, cutting scores slightly higher than one standard deviation below the mean will eliminate about 1/3 of the sample. The Phi Coefficient was used as a basis for comparing trial norms. Norms of V-95, S-90, P-85 and Q-100 provided the highest degree of differentiation. The validity of these norms is shown in Table 6 and is indicated by a Phi Coefficient of .25 (statistically significant at the .05 level).

TABLE 6

Predictive Validity of Test Norms
V-95, S-90, P-85 and Q-100

	Nonqualifying Test Scores	Qualifying Test Scores	Total
Good Workers	9	19	28
Poor Workers	14	9	23
Total	23	28	51

Phi Coefficient = .25

Significance Level = $P/2 < .05$

Chi Square (χ^2) = 3.1

DETERMINATION OF OCCUPATIONAL APTITUDE PATTERN

The data for this study did not meet the requirements for incorporating the occupation studied into an OAP. However the occupation was placed in OAP-13 which is shown in the 1970 edition of Section II of the Manual for the General Aptitude Test Battery as a result of qualitative analysis.

Course of Study

Manager, Store (ret. tr.) I 185.168-054

General: Any graduate of an accredited high school may enroll in the two-year, junior college course dealing with Retailing. Applicants who are not high school graduates may be admitted on the bases of previous scholastic record and extent of pertinent work experience.

The Retailing program is designed to develop qualified workers in the fields of men's wear, women's wear, children's wear, shoe merchandising, furniture and appliance merchandising, and food merchandising. It will also provide training in advertising, window display, buying, and department management.

This is a cooperative education-work training program in which retail stores will provide work for a specific number of students for at least two semesters of their training.

Course

Description: The various courses for this program are listed below:

Introduction to Retailing - Basic understanding of the types of retail establishments, organization and divisions within retail establishments, departmental functions.

Retail Recordkeeping - Basic principles involved in the keeping of financial records including terms and discounts, mathematics of mark-up and mark-down, inventory, budgeting, expense control, profits, and reports.

Merchandising Control - To explain the control of the flow of stock through a retail establishment including the kinds of stocks, merchandise classifications, perpetual inventory and automatic recorder systems.

Techniques of Retail Buying - Duties of the buyer, determining consumer demand, when and how much to buy, finding sources of supply and developing good relations with resources, methods and techniques of merchandise selection, pricing and watching stock movement, etc.

Retail Sales Promotion I - Special problems of retail advertising, such as advertising department organization and procedures, planning and preparation of advertising, types of advertising, copy and layout, coordinating external and internal methods of sales promotion.

Retail Personnel - Problems involved in recruiting, hiring, placement, evaluation, promotions and transfers, training, scheduling, and laws governing employee-employer relations.

Color, Line and Design - Presents elements of line, form, texture and space with practical applications to retailing in the areas of merchandise selection, advertising, display, and home furnishings.

Retail Sales Promotion II - Special problems of retail store layout and display. Study is made of fixtures and layout arrangement suitable for different types of merchandise and various types of stores.

Retail Store Management - The responsibilities of a Store Owner or a Merchandise Manager for a group of departments in a large store. Determining store space and allotment for various types of merchandise, budgeting buying dollars between a group of departments or several classifications of merchandise, seasonal operations, leased operations, the difference between merchandising fashion, staple, prestige and low priced merchandise, building construction and maintenance, personnel, customer services and relations, overhead expense.

Techniques of Sales and Advertising - Basic course in the fundamentals of salesmanship and the responsibilities of the seller to the customer, to the firm, and to himself. Includes: qualities of successful salesmanship, the techniques of how to approach a customer, show the merchandise, build and close the sales, and how to build a permanent business.

Techniques of Public Relations - A study of the business of industrial firm's place in the community, actions which build good will, organizations to which individuals and firms may belong, relationships to other commercial firms, with educational and governmental institutions.

Communication Skills I - Development of additional skills in organizing ideas and in expressing self both orally and in writing.

Techniques of Typewriting - Beginning course which emphasizes the correct techniques in the operation of the typewriter.

Techniques of Human Relations - Personal application of effective human relationships. Includes: development of good personality, the ability to analyze and resolve problems involving human relations, and an understanding of how individuals and groups cooperate in an interdependent world.

The Citizen in Society I - Orientation to the methods and objectives of the social sciences and an introduction to the culture concept. Application of this new knowledge tool to an analysis of the American society with special reference to the groups, including institutions, that determine the roles and status of the individual.

The Citizen in Society II - A study of basic social problems in the world today, including the "isms," race relations, and peace and security in the Atomic Age.

American Economic Institutions - Economic theories and principles and their relationship to current problems of business and industry, government and labor. Includes: labor-management laws, private and government ownership of property, national financial structure, and the relation of taxation to inflation and deflation.

Retail Work Experience - Four hundred hours of supervised part-time work experience with pay in a retail store during which time students receive an orientation in all phases of store operations.

FACT SHEET

Job Title

Manager, Store (ret. tr.) I 185,168-054

Job Summary

Manages store retailing merchandise such as apparel, furniture, appliances, shoes, or food, attending to over-all operations personally or co-ordinating activities through subordinates.

Work Performed

Compiles reports of cash receipts, purchases, and overhead expenses to maintain records of disbursements and expenditures and determine profit, losses, and operating expenses. Prepares receipts for deposits. Reviews financial records and reports of subordinates to detect discrepancies. Files records or devises file system for records. Directs activities of clerical personnel.

Recruits, hires, trains, promotes, transfers, and discharges personnel according to employment requirements and worker performance. Plans work schedules and supervises workers to insure efficient and productive performance of job. Maintains personnel records of employees and computes establishment payroll or approves payroll reports compiled by clerical personnel.

Compiles and analyzes reports relating to sales volume, gross receipts, overhead expenses, stock inventory, net profits, losses, and purchase orders to determine consumer demand for products, seasonal or style changes influencing, sales volume, availability of merchandise to meet customer demand, and to improve merchandise selections. Prepares sales charts and graphs to plot high and low periods of sales activities and use as aids in ordering merchandise.

Conducts periodic inventory of stock or verifies reports from subordinates to determine status of supply and purchases or requisitions merchandise to replenish depleting stock.

Formulate price policies for merchandise or directs subordinates to mark-up and mark-down prices following directives from parent firm or through agreement with sales representatives.

Negotiates with salesmen to develop sources of merchandise or lines of products meeting approval of consumer market. Examines incoming stock purchases to determine condition of shipment and negotiate price adjustments on damaged merchandise.

Co-ordinates sales promotional activities and approves advertising campaigns and sales displays of merchandise. Plans type of advertising approaches such as radio, T.V., newspapers, special flyers, and specials to promote new products or dispose of surplus merchandise. Plans and arranges displays in windows and on floors to focus consumer attention to new or established lines of merchandise.

Converses with customers to determine types of purchases desired, process application for credit, and arrange for payment of purchases. Handles customer complaints and approves adjustments for defective merchandise.

Effectiveness of Norms

Only 55% of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the S-385 norms, 68% would have been good workers. 45% of the non-test-selected workers used for this study were poor workers; if these workers had been test-selected with the S-385R norms, only 32% would have been poor workers.

Applicability of S-385R Norms

The aptitude test battery is applicable to jobs which include a majority of duties described above.

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